

In the Claims:

Please cancel claims 1-7, 11-16, 18-20, 22, 25-26, 28-29, and 40, as presented below.

1-7. (canceled)

8. (previously presented) A method of identifying crosstalk in a received signal, the method comprising:

- collecting received data corresponding to the received signal from a receiver;
- collecting primary data from a primary transmitter;
- collecting crosstalk data from a crosstalk transmitter;
- identifying a crosstalk function corresponding to the crosstalk data;
- collecting a plurality of sets of crosstalk data from a plurality of crosstalk transmitters, the plurality of sets of crosstalk data comprising a set of strong crosstalk signal data corresponding to a strong crosstalk signal and a set of weak crosstalk signal data corresponding to a weak crosstalk signal;
- determining whether a timing offset exists between the received data and the set of strong crosstalk signal data;
- generating a first estimate of any determined timing offset between the received data and the set of strong crosstalk signal data;
- identifying a strong crosstalk function corresponding to the strong crosstalk signal data;
- subtracting the strong crosstalk function from the received signal to generate a modified received signal;
- determining whether a timing offset exists between the received data and the set of weak crosstalk signal data;
- generating a first estimate of any determined timing offset between the modified received signal and the weak crosstalk signal data; and
- identifying a weak crosstalk function corresponding to the weak crosstalk signal data.

9. (previously presented) A method of identifying crosstalk in a received signal, the method comprising:

- collecting received data corresponding to the received signal from a receiver;
- collecting primary data from a primary transmitter;
- collecting crosstalk data from a crosstalk transmitter;
- subtracting the primary data from the received data prior to determining the first estimate of the timing offset between the received data and the crosstalk data;
- determining a first estimate of a timing offset between the received data and the crosstalk data; and
- identifying a crosstalk function corresponding to the crosstalk data.

10. (previously presented) A method of crosstalk in a received signal, the method comprising:

- collecting received data corresponding to the received signal from a receiver;
- collecting primary data from a primary transmitter;
- collecting crosstalk data from a crosstalk transmitter;
- identifying a crosstalk function corresponding to the crosstalk data; and
- performing multiuser detection using the identified crosstalk function.

11-16. (canceled)

17. (previously presented) A system for identifying crosstalk comprising:

- a first transmitter configured to transmit a first signal;
- a second transmitter configured to transmit a second signal;
- a receiver configured to receive a combined signal, the combined signal comprising the first signal and crosstalk interference from the second signal; and
- a processor comprising:
 - a data collector in communication with the first transmitter, the second transmitter and the receiver, the collector configured to collect:
 - a first signal data set corresponding to the first signal;
 - a second signal data set corresponding to the second signal; and
 - a combined signal data set corresponding to the combined signal;
 - a crosstalk identifier connected to the data collector comprising:

a first timing offset estimator configured to calculate a first estimate of a timing offset between the combined signal and the second signal; and

a crosstalk response estimator configured to estimate the crosstalk interference present in the combined signal and also configured to calculate a second estimate of the timing offset.

18-20. (canceled)

21. (previously presented) The system of claim 17 wherein the processor is located at a location remote from the first and second transmitters and the receiver.

22. (canceled)

23. (previously presented) A system for identifying crosstalk comprising:

a first transmitter configured to transmit a first signal;

a second transmitter configured to transmit a second signal;

a receiver configured to receive a combined signal, the combined signal comprising the first signal and crosstalk interference from the second signal; and

a processor comprising:

a data collector in communication with the first transmitter, the second transmitter and the receiver, the collector configured to collect:

a first signal data set corresponding to the first signal;

a second signal data set corresponding to the second signal; and

a combined signal data set corresponding to the combined signal;

a crosstalk identifier connected to the data collector comprising:

a crosstalk response estimator configured to estimate the crosstalk interference present in the combined signal; and

a data conditioner, connected to the data collector, configured to resample collected data.

24. (previously presented) A system for identifying crosstalk comprising:

- a first transmitter configured to transmit a first signal;
- a second transmitter configured to transmit a second signal;
- a receiver configured to receive a combined signal, the combined signal comprising the first signal and crosstalk interference from the second signal; and
- a processor comprising:
 - a data collector in communication with the first transmitter, the second transmitter and the receiver, the collector configured to collect:
 - a first signal data set corresponding to the first signal;
 - a second signal data set corresponding to the second signal; and
 - a combined signal data set corresponding to the combined signal;
 - a crosstalk identifier connected to the data collector comprising:
 - a crosstalk response estimator configured to estimate the crosstalk interference present in the combined signal; and
 - a data subtractor configured to subtract the first signal from the combined signal to generate an interference signal.

25. (canceled)

26. (canceled)

27. (previously presented) A crosstalk identifier comprising:

- a collector configured to collect data from a primary signal transmitter, from a crosstalk signal transmitter and from a receiver;
- a crosstalk estimator in communication with the collector, the crosstalk estimator configured to determine a first estimate of a crosstalk response in the data from the receiver and further configured to determine a second estimate of the timing offset between the data from the receiver and the data from the crosstalk signal transmitter; and

a timing estimator connected to the collector, the timing estimator configured to determine a first estimate of a timing offset between the data from the receiver and the data from the crosstalk signal transmitter.

28. (canceled)

29. (canceled)

30. (original) The identifier of claim 27 wherein the crosstalk estimator uses a least-squares estimator to determine a second estimate of the timing offset.

31. (canceled)

32. (original) A method for identifying crosstalk in a received signal caused by interference from a crosstalk signal, the method comprising:

collecting received data from a receiver that has received the received signal during a specified time period;

collecting primary data transmitted as a primary signal during the specified time period;

collecting crosstalk data transmitted as a first crosstalk signal during the specified time period;

subtracting the primary data from the received data to generate interference data;

determining a first estimate of a timing offset between the received signal and the first crosstalk signal, comprising cross-correlating the interference data and the crosstalk data;

identifying a crosstalk function corresponding to the crosstalk signal, comprising

performing a least-squares estimation to identify the crosstalk function and the crosstalk signal using the interference data and the first estimate of the timing offset.

33. (previously presented) A method of dynamically managing spectra in a DSL system, the method comprising:

identifying crosstalk functions and characteristics in the DSL system as a function of a differential between known transmitted data and a combined signal, the combined signal including the known transmitted data and crosstalk noise;

transferring information concerning the identified crosstalk functions; and

controlling, as a function of the transferred information, line spectra in modems in the DSL system.

34. (previously presented) The method of claim 33 wherein identifying crosstalk functions and characteristics in the DSL system includes determining an interference signal as a function of the differential and identifying a crosstalk function based on the known transmitted data and the interference signal, and wherein controlling line spectra in modems in the DSL system includes adjusting spectra in the DSL system to reduce crosstalk interference.

35. (original) The method of claim 33 wherein the step of identifying crosstalk functions and characteristics in the DSL system includes the step of identifying crosstalk in a received signal, identifying crosstalk in a received signal comprising: collecting received data corresponding to the received signal from a receiver; collecting primary data from a primary transmitter; collecting crosstalk data from a crosstalk transmitter; identifying a crosstalk function corresponding to the crosstalk data.

36-39. (canceled)

40. (canceled)